Enhancing Homeland Security with Models, Simulations and Games

Briefing to:
MOVES Open House

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Phase I Project Overview

- Conducted research for DHS' Office for Domestic Preparedness (ODP) on the state/availability of technologies for training and exercising (T&E) – specifically models, simulations, and games (MS&G)

Project Methodology

- Conduct field research of the existing homeland security T&E program
- Collect WMD and terrorism response-related T&E requirements
- Review over 100 MS&G products and related initiatives
- Incorporate requirements and product characteristics into a searchable database
- Create a framework for tying requirements to MS&G based on instructional strategy
- Finally – produce a roadmap for incorporating MS&G

Current State of Training and Exercising

- Classroom Training
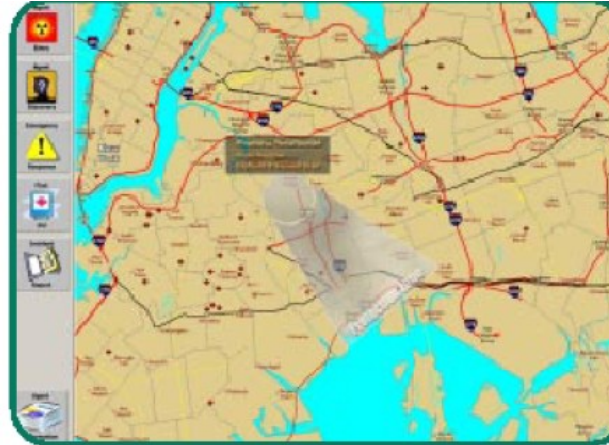- Table-top Exercises
- Full-scale Exercises

Issues with Current T&E

- Demand for all-hazards preparedness training and exercises <u>far exceeds the current capacity</u> for delivery
- <u>Face-to-face</u> emphasis requires experienced instructors and facilitators and although effective, <u>cannot meet today's needs</u>
- An estimated 3.2 million first responders need T&E, not to mention an additional 4-5 million medical workers and countless others from the private sector

- BOTTOM LINE:
  - Need to <u>EXPAND REACH</u>, <u>INCREASE FREQUENCY</u>, <u>LOWER COSTS</u>
  - How can MS&G Help?

Future State of Training and Exercising: MS&G

Models

Simulation s

Human Patient Simulator

BioSimMER

STATCare

Games

The first step in understanding how to use MS&G is to <u>understand the requ</u>

Identifying Training and Exercise Requirements

- Collected over 1,100 T&E requirements from authoritative sources - FEMA, ODP, Presidential Directives and from interviewed authorities

- Categorized requirements by descriptive attributes (e.g., student level, type of WMD) for entry into a relational database

- Used Rational Requisite Pro (RRP) to both capture requirements and map product capabilities

Results from Requirements Analysis

- Most requirements associated with ALL TYPES of WMD vs. specific to CBRNE
  - Potential shortfall in WMD-specific requirements?
- Few requirements for public safety communications, govt. adminsitrative, private sector, hospital, and transportation areas
- Most requirements focused at first responders vs. federal, state, and local officials

Review MS&G

- Reviewed over 100 products/initiatives
- Identified key product attributes
- Collected narrative product descriptions, cost info, contract support required, training strategies, etc.
- Generated a matrix for comparing T&E needs to existing product capabilities

Results from MS&G Analysis

- Media selection is requirements driven and needs a DSS
- Few MS&G for senior officials, equipment and awareness training, public safety communications, transportation, hospital, biological and radiological events
- Current standards for M&S data architectures, protocols and formats not adopted in domestic preparedness applications
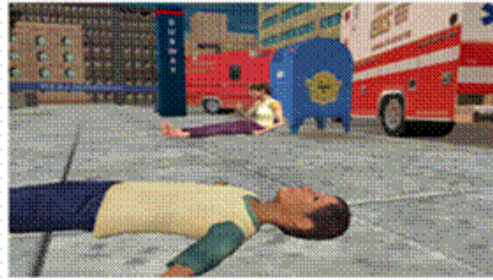
Research Questions

- Many MS&G exist
  - What is the best way to choose among myriad alternative T&E tools?
  - How can one ensure that training requirements are met using any given t

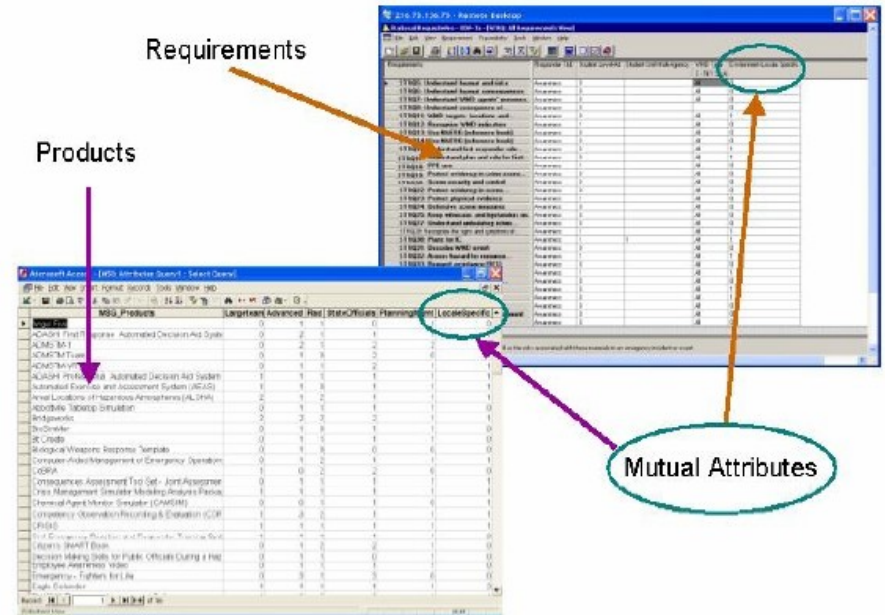Human Patient Simulator—Photo courtesy of Medical Education Technologies Inc.

BioSimMER—screen shot courtesy of
Sandia National Laboratories & Ithaca College

STAT Care—screen shot courtesy of RTI International

Project Output: Proposed Decision Support System

- DSS enables:
  - querying
  - filtering large records matrices
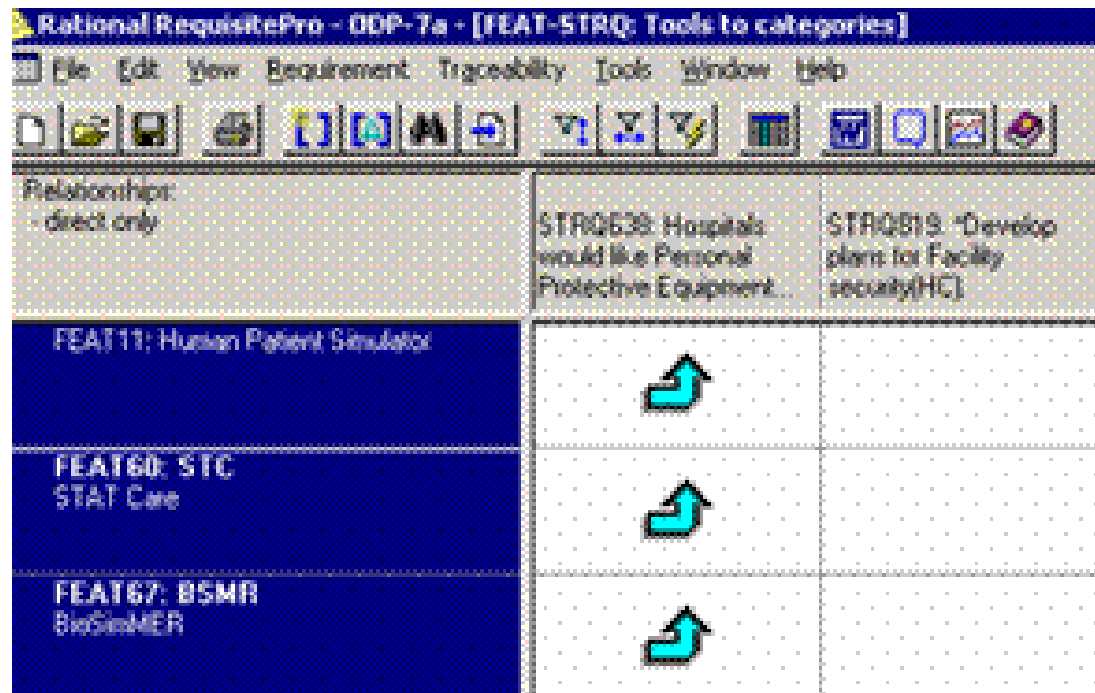 - studying relationships between requirements and products via common attributes

DSS Sample Use

- Updating course content by inspecting current training

Requirements	Attributes					
Requirements:	Functional Area 3 - FltY SrtA	Target Audien	WMD Type 1 - FltY SrtA	Prevention Task	Applied Context-Equipmen	ODP Training/
STRQ585: Flow of public information.	EMA, EMS, FD, HazMat	Commanders,	All		0	FSE
STRQ589: Protection of a crime scene.	EMA, EMS, FD, HazMat	1st Responder	All			
STRQ590: Detection.	EMA, EMS, FD, HazMat	1st Responder	All		1	
STRQ592: Decontamination.	EMA, EMS, FD, HazMat	1st Responder	All		1	
STRQ568: Medical Capabilities.	EMS, HC, Public Health	1st Responder	All		1	
STRQ587: Patient dealings.	EMS, FD, HazMat, HC,	1st Responder	All		1	
STRQ963: EMS integration	EMS, HC		All		0	FSE
STRQ586: Medical facilities.	HC	1st Responder	All		1	
STRQ783: Test adequacy of mental health...	HC, Public Health		All		0	
STRQ809: "Recognize signs and symptoms of WMD...	HC		All	Y	1	
STRQ819: "Develop plans for Facility security(HC).	HC		All	Y	0	
STRQ831: "Understand decontamination...	HC		All	Y	1	
STRQ842: "Develop a decontamination strategy to...	HC		All	Y	0	
STRQ848: "Develop plans for Illness, injury and line...	HC		All	Y	0	
STRQ849: "Develop plans for Medical surveillance c	HC		All	Y	0	
STRQ852: "Establish triage and treatment protocols.	HC		All	Y	0	
STRQ859: "Know how to wear and use the...	HC		All	Y	1	
STRQ883: "Develop plans for Fatality...	HC		All	Y	0	
STRQ893: Develop plans for Fatality management.	HC		All		0	
STRQ566: Bio-Remediation.	Dept. Health & Human	1st Responder	biological		0	
STRQ563: Threat Preparation.	EMA, EMS, FD, HazMat	1st Responder	biological		0	
STRQ564: Integration of Criminal and...	EMS, HC, LE, Public He	1st Responder	biological		1	
STRQ571: Medical Monitoring/Surveillance.	EMS, HC, Public Health	1st Responder	biological		0	TTX
<Click here to create a requirement>			All		0	

DSS Sample Use

- Determine products appropriateness for training and/or exercising selected requirements.

Strategic Roadmap for MS&G
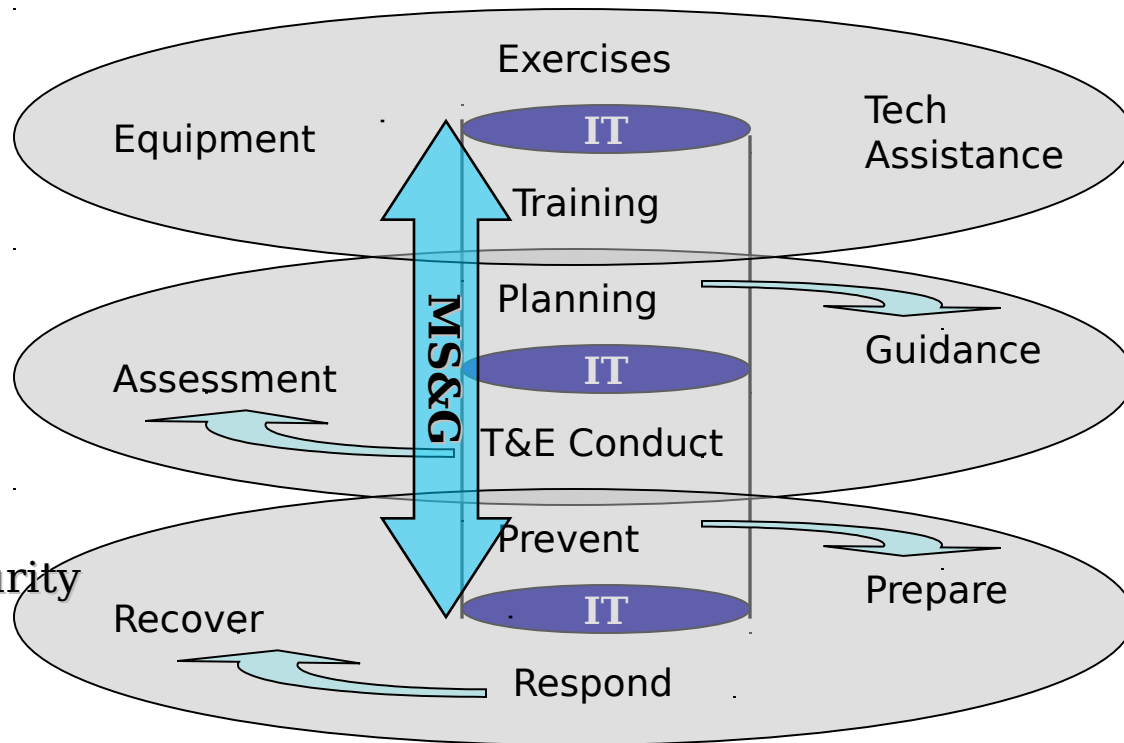
Addressed 3 main needs:

- Use of MS&G by constituents limited by lack of funding and knowledge/understanding of MS&G

- T&E program needs (access, frequency, realism, gaps, performance evaluation, feedback) can be enhanced w/ MS&G

- Facilitation of national program management through integration of MS&G and related technologies into an IT infrastructure

Future Vision

ODP Program Functions

Exercises

Equipment

IT

Tech Assistance

Training

Local, State, National T&E Functions

Planning

Assessment

IT

Guidance

MS&G

T&E Conduct

Operational Homeland Security Functions

Prevent

Recover

IT

Prepare

Respond

For more information

- Copies of ThoughtLink's product reviews:
  - http://www.ojp.usdoj.gov/odp/exercises.htm
    (select the MS&G link)

- Or contact Julia Loughran, loughran@thoughtlink.com, 703-281-5694